

Notice of Allowability

Application No.

09/892,382

Examiner

Jonas N. Strickland

Applicant(s)

NAHAS ET AL.

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/9/04.
2. ☒ The allowed claim(s) is/are claims 1-24.
3. ☒ The drawings filed on 26 June 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892) | 5 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____ |
| 3 <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No. <u>3/02</u> | 7 <input type="checkbox"/> Examiner's Amendment/Comment |
| 4 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |


STANLEY S. SILVERMAN
SUPERVISORY PATENT EXAMINER

TECHNOLOGY CENTER 1750

Allowable Subject Matter

Claims 1-24 are allowed.


The following is an examiner's statement of reasons for allowance: The instant application is allowable over the cited prior art, because the cited prior art fails to disclose a process for controlling afterburn in a catalyst regenerator of a fluidized catalytic cracking unit, wherein the regenerator comprises a catalyst bed and a dilute phase, the dilute phase is positioned above the catalyst bed and below an inlet to a solid-gas separator, said dilute phase comprises a first zone comprising oxygen, wherein combustion in said first zone is fuel-limited; a second zone comprising carbon monoxide, wherein combustion in said second zone is oxygen-limited, said process comprising the step of injecting an effective amount of steam into said dilute phase to mix the gases from said first zone and second zone so that a substantial portion of carbon monoxide combusts before passing through the inlet to the solid-gas generator.

Luckenbach (US Patent 5,156,817) discloses devices for introducing and uniformly distributing spent catalyst into a regenerator bed of a fluid catalytic cracking unit. Luckenbach discloses wherein the regenerator comprises a catalyst bed and a dilute phase, the dilute phase is positioned above the catalyst bed and below an inlet to a solid-gas separator, said dilute phase comprises a first zone comprising oxygen, wherein combustion in said first zone is fuel-limited; a second zone comprising carbon monoxide, wherein combustion in said second zone is oxygen-limited (see Figure 1). However, Luckenbach does not disclose wherein steam is injected into the dilute phase. Luckenbach discloses wherein steam is added to the dense phase (col. 5, lines 53-65).

Bunn, Jr. et al. (US Patent 4,051,069) teaches a process for regenerating a spent coke contaminated fluidized cracking catalyst by burning coke with molecular oxygen containing regeneration gas in a fluidized dense phase bed, and for burning substantially all carbon monoxide formed to carbon dioxide (see abstract). Bunn, Jr. et al continues to teach wherein steam may be injected into a transition zone, but not the dilute phase (col. 3, lines 9-65; col. 5, lines 43-59).

Blanding (US Patent 2,454,373) teaches a fluidized catalyst regeneration process which includes overhead cooling. Blanding teaches injecting water into the gases above the dense phase, but wherein the injection of water turns into steam, which causes a serious disadvantage, because it causes serious deactivation of the catalyst (col. 2, lines 3-21).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Thomas N. Strickland
April 9, 2004